

In response to the Office Action of February 4, 2003, kindly amend the application as follows:

IN THE CLAIMS:

Please delete claims 43 58 and 60.

Please amend claims 30, 35-39, 44, 45, 51 and 59 as follows:

130. (Twice Amended) A method for monitoring the use of resources and materials in a manufacturing sequence, comprising the steps of:

storing data representing said manufacturing sequence in a data structure;

organizing said data in said data structure as one or more orders representing one or more materials being consumed and/or created in said manufacturing sequence;

linking said orders so that the order that consumes a material follows the order that creates the respective material in said manufacturing sequence;

linking, for each of said orders, one or more activities representing materials being processed by manufacturing resources;

linking said activities chronologically within each order, said link between activities further comprising data representing temporal constraints between said activities and temporal constraints between activities in different orders in said manufacturing sequence;

providing a link from one or more of said activities for one or more orders to a data that identifies a corresponding resource; and

determining based on a start time for a first of the orders whether a specific resource is in use at any given time during said manufacturing sequence.

6/35. (Amended) A method for facilitating the dynamic allocation of manufacturing resources and materials in a manufacturing sequence, comprising the steps of:

02 storing data for said manufacturing sequence in a data structure, said stored data structure comprising one or more orders representing one or more materials being consumed and/or created in said manufacturing sequence, said orders being linked such that the order that consumes a material follows the order that creates said material in said manufacturing sequence, each of said orders comprising one or more activities representing materials being processed by said manufacturing resources, said activities being linked chronologically within each order, said link between activities further comprising data of temporal constraints between said activities;

determining a start time for a first activity of said manufacturing sequence;
and

determining using said data of temporal constraints in said data structure start times for all of said activities that are performed on a particular one of said manufacturing resources.

11 ~~36~~. (Amended) The method of claim ~~35~~⁶, wherein said data structure further comprises data representing temporal constraints between said activities in different orders in said manufacturing sequence.

C2 13 ~~37~~. (Amended) The method of claim ~~35~~⁶, and further comprising adjusting said start time for one or more of said activities in said manufacturing sequence; and

using said data structure to dynamically re-calculate said start times for one or more of said activities on subsequent ones of said manufacturing resources.

14 ~~38~~. (Amended) The method of claim ~~35~~⁶, and further comprising the step of optimizing the use of said manufacturing resources in real time by dynamically allocating certain of said manufacturing resources to other uses based on the calculated availability of said manufacturing resources in said manufacturing sequence.

15 ~~39~~. (Amended) A system for supply chain planning, said system having means for storing data in a data structure, so that an application program can access data therein, said stored data structure comprising:

a plurality of orders, at least one of said orders having a pre-assigned order number, stored in the means for storing, each said order comprising:

a) one or more activities each representing a working step that is indivisible from a production planning perspective, and each being linked to a reference to all immediately preceding activities;

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b) one or more input interface nodes each representing a material consumed by said order, each input interface node being linked to all activities that consume said material;

c) one or more output interface nodes each representing a material created by said order, each output interface node being linked to all activities that create said material; and

d) a database table having an entry for each pre-assigned order number matched to a corresponding object identity, which is a reference to the respective order; wherein one of said orders being a first order, each output interface node of said first order being linked to a respective input interface node of each of the other of said orders subsequent to said first order that are scheduled to consume the material associated with said output interface node of said first order.

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43. (Deleted).

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19 44. (Amended) The system of claim ¹⁵ 19, wherein said database table is stored in memory which includes a RAM buffer.

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15. (Amended) The system of claim ~~39~~, wherein when an order comprises a plurality of said activities therein, two or more of said activities together constituting an operation, each operation having a pre-assigned operation number, said data structure further comprising a database table having an entry storing each object identity and pre-assigned operation number matched to the earliest activity of the respective operation.

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51. (Amended) A data structure stored so as to be accessed by an application program for supply chain planning in a data processing system, comprising:

a plurality of orders, each of said plurality of orders having at least one of:

- a) one or more input interface nodes, wherein each input interface node represents a material consumed by said order; and
- b) one or more output interface nodes, wherein each output interface node represents a material created by said order;

wherein one of said orders being a first order, one or more of said output interface nodes of said first order is linked to a respective input interface node of each subsequent order scheduled to consume the material associated with said output interface node of said first order.

58. (Deleted).

33/59. (Amended) A system for supply chain planning, said system comprising means for storing data and a data structure stored on said means for storing so that an application program can access data therein, said stored data structure comprising:

CS a plurality of orders having a pre-assigned order numbers, each said order representing at least one activity, wherein

a) each activity representing a working step that is indivisible from a production planning perspective;

b) each activity being linked to a reference to all immediately subsequent activities;

c) each activity being linked to a reference to all immediately preceding activities;

d) said reference to all immediately preceding activities and said references to all immediately subsequent activities each have at least two attributes, including a minimum and a maximum time interval between activities and a type of temporal constraint;

e) a plurality of said activities within at least one of the orders constitutes an operation, having a pre-assigned operation number;